PATENT CLAIMS

1. A control system (11) for controlling an apparatus and/or a process (10),

   - said control system (11) being based on a finite state machine defined by

     - a finite number of states S_i, $i \in \{1,\ldots,n\}=:S$, exactly one of which said finite state machine may reside in at any given time, and

     - for at least one first state S_k, a number $N_{k,l}$ of allowed transitions $t_{k,l}^{(m)}$ to at least one second state S_l, with k, $l \in T \subseteq \{i,j \mid i,j \in S\}$, $m = 1,\ldots,N_{k,l}$,

   characterized in that

   - the control system (11) is configured to produce a graphical representation of the finite state machine, comprising at least two states S_α and S_ω with $\alpha,\omega \in S$ and $\alpha \neq \omega$, and at least one allowed transition $t_{\alpha,\omega}^{(1)}$ between said two states S_α and S_ω.

2. The control system (11) as claimed in claim 1, characterized in that

   - the graphical representation comprises all states S_i, $i \in S$, and all allowed transitions $t_{k,l}^{(m)}$ with k, $l \in T \subseteq \{i,j \mid i,j \in S\}$, $m = 1,\ldots,N_{k,l}$.

3. The control system (11) as claimed in one of the preceding claims, characterized in that

   - the graphical representation, when displayed on a graphical display device, shows states as state symbols and allowed transitions as connections between state symbols.

4. The control system (11) as claimed in one of the preceding claims, characterized in that

   - during an operation of the control system (11), the current state S_k in which the finite state machine resides is marked in the graphical representation and

   - the graphical representation is updated when a state transition has occurred.

5. The control system (11) as claimed in one of the preceding claims, characterized in that

   - for at least one of the allowed transitions $t_{k,l}^{(m)}$, a transition probability is indicated in the graphical representation.

6. The control system (11) as claimed in claim 5, characterized in that

   - the transition probability is a total transition probability.

7. The control system (11) as claimed in claim 6, characterized in that

- the transition probability is an interval based transition probability.

8. The control system (11) as claimed in one of the claims 5 through 7, characterized in that

- the allowed transitions $t_{k,l}^{(m)}$ are classified as belonging to one of the following classes:
  - controlled transition, if a corresponding transition condition, when separated into partial conditions, contains only partial conditions that depend on the control system (11),
  - operator facilitated transition, if the corresponding transition condition, when separated into partial conditions, contains at least one partial condition referring to an operator input,
  - process driven transition, if the transition is neither a controlled transition nor an operator facilitated transition,

  and
- that the control system (11) is configured to compute transition probabilities for controlled transitions.

9. The control system (11) as claimed in one of the claims 5 through 8, characterized in that

- a most probable path is determined by the control system (11) and marked in the graphical representation.

10. The control system (11) as claimed in one of the preceding claims, characterized in that

- at least one economic parameter is indicated for at least one state S_i or one allowed transition $t_{k,l}^{(m)}$.

11. A computer program product comprising a computer readable medium, having thereon: computer program code means that, when loaded onto a computer that is operationally connected to an apparatus and/or a process, makes said computer constitute a control system (11) according to one of claims 1 through 9.